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(54) **SYSTEM AND METHOD OF PROVIDING VOICE COMMUNICATION**

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(58) **Field of Classification Search**
USPC 379/309, 265.01–265.14, 266.01–265.1
See application file for complete search history.

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Related U.S. Application Data

(63) Continuation of application No. 11/586,482, filed on Oct. 25, 2006, now Pat. No. 8,045,700.

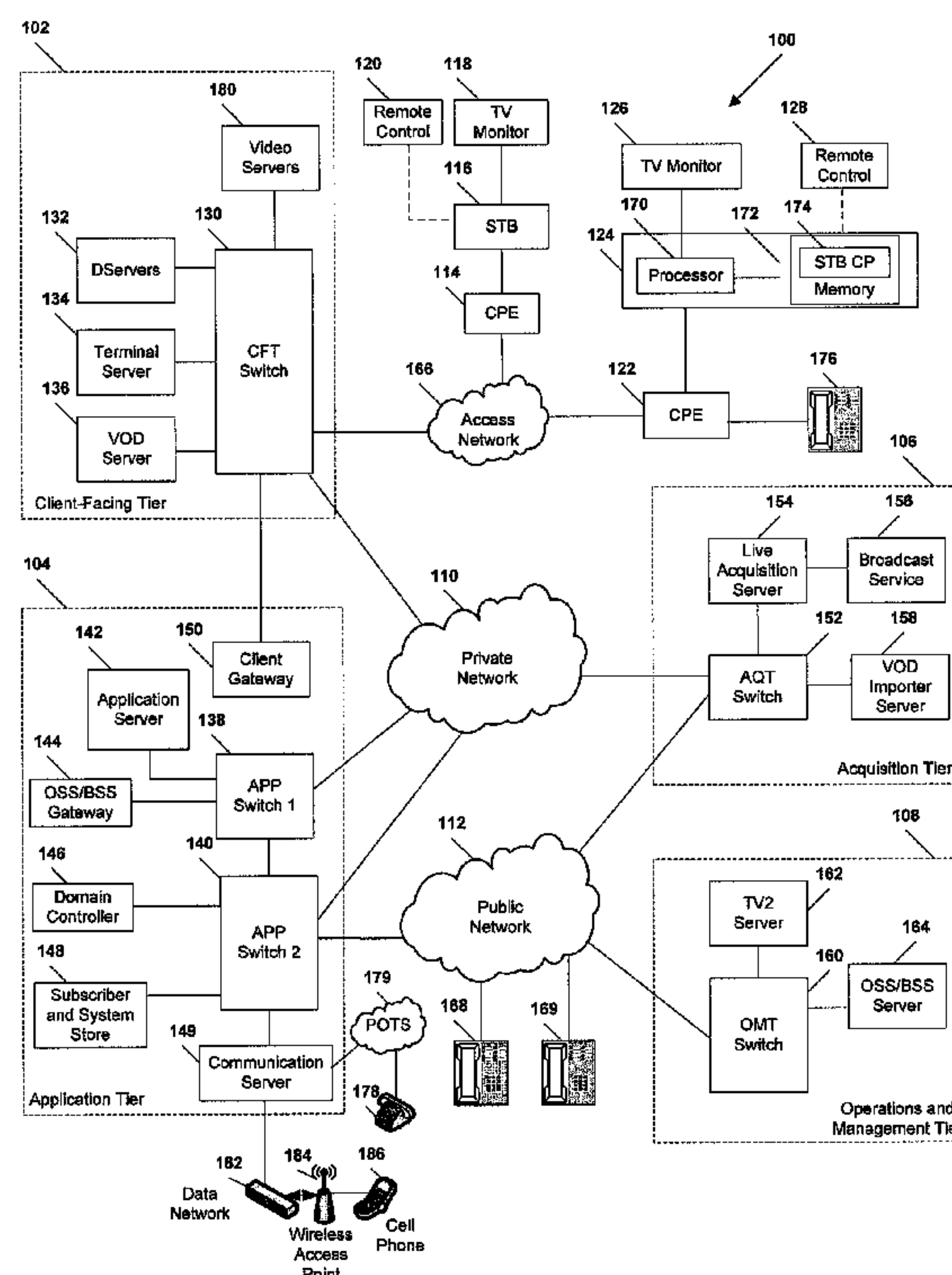
(51) **Int. Cl.**
H04M 3/00 (2006.01)

(52) **U.S. Cl.**
USPC **379/309; 379/265.01**

(57) **ABSTRACT**

A method includes receiving, at a device, a request to initiate a call with respect to a contact and a communication device associated with a caller. In a particular embodiment, the method may further include initiating presentation, at a display device, of a selectable call placement indicator to initiate the request. In another particular embodiment, the method may further include sending display data to the display device, where the display data indicates that the call has been placed to the contact.

20 Claims, 8 Drawing Sheets



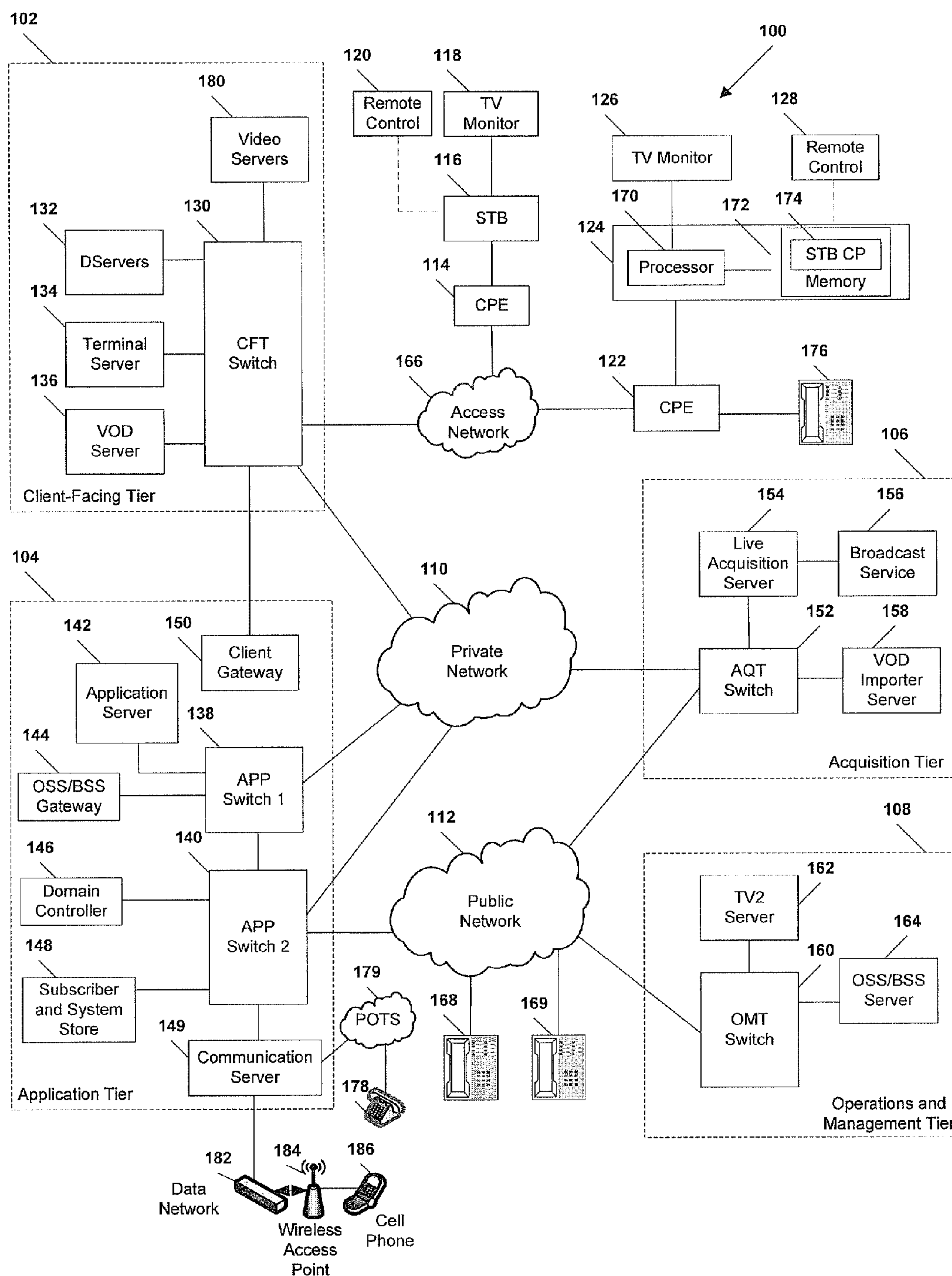


FIG. 1

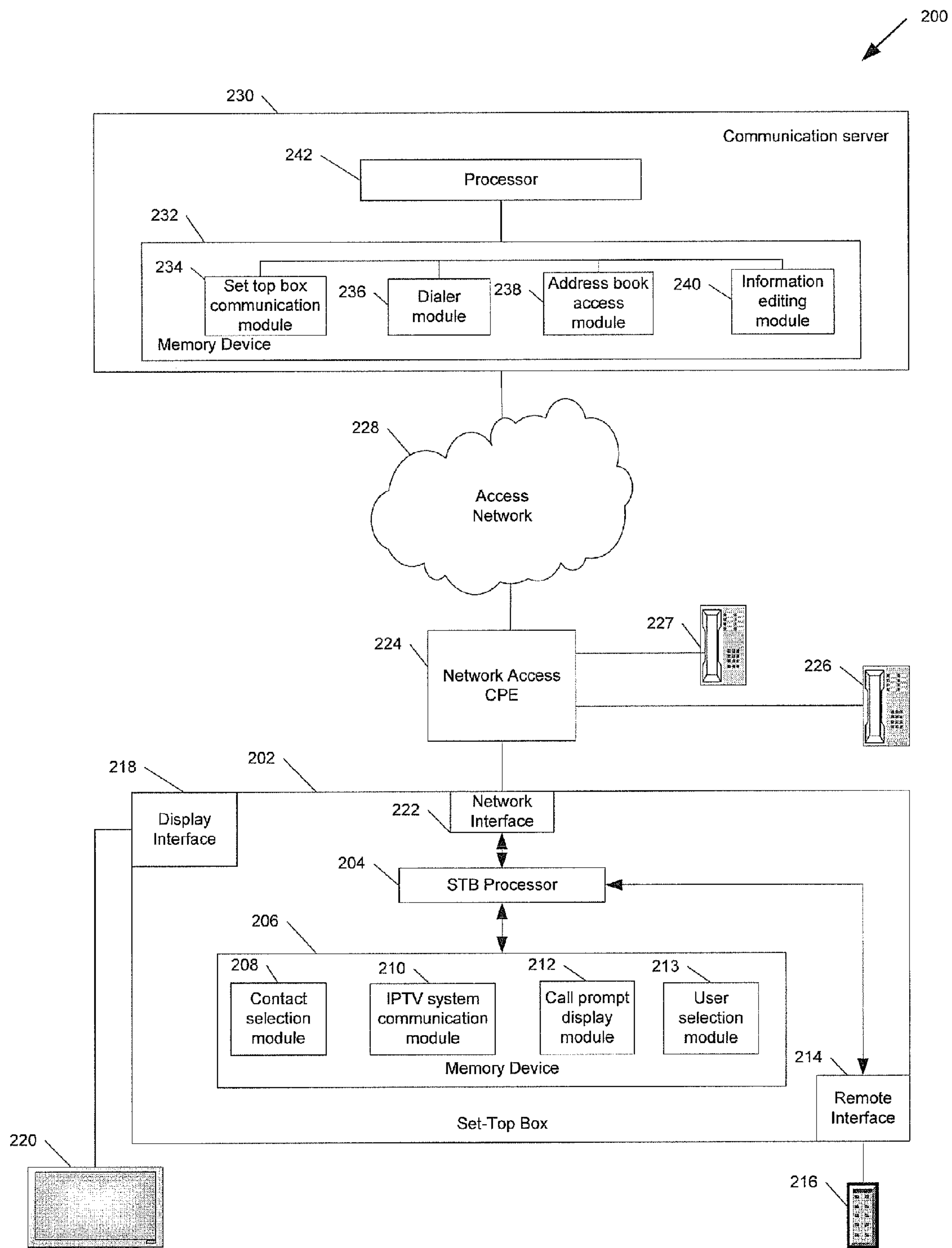


FIG. 2

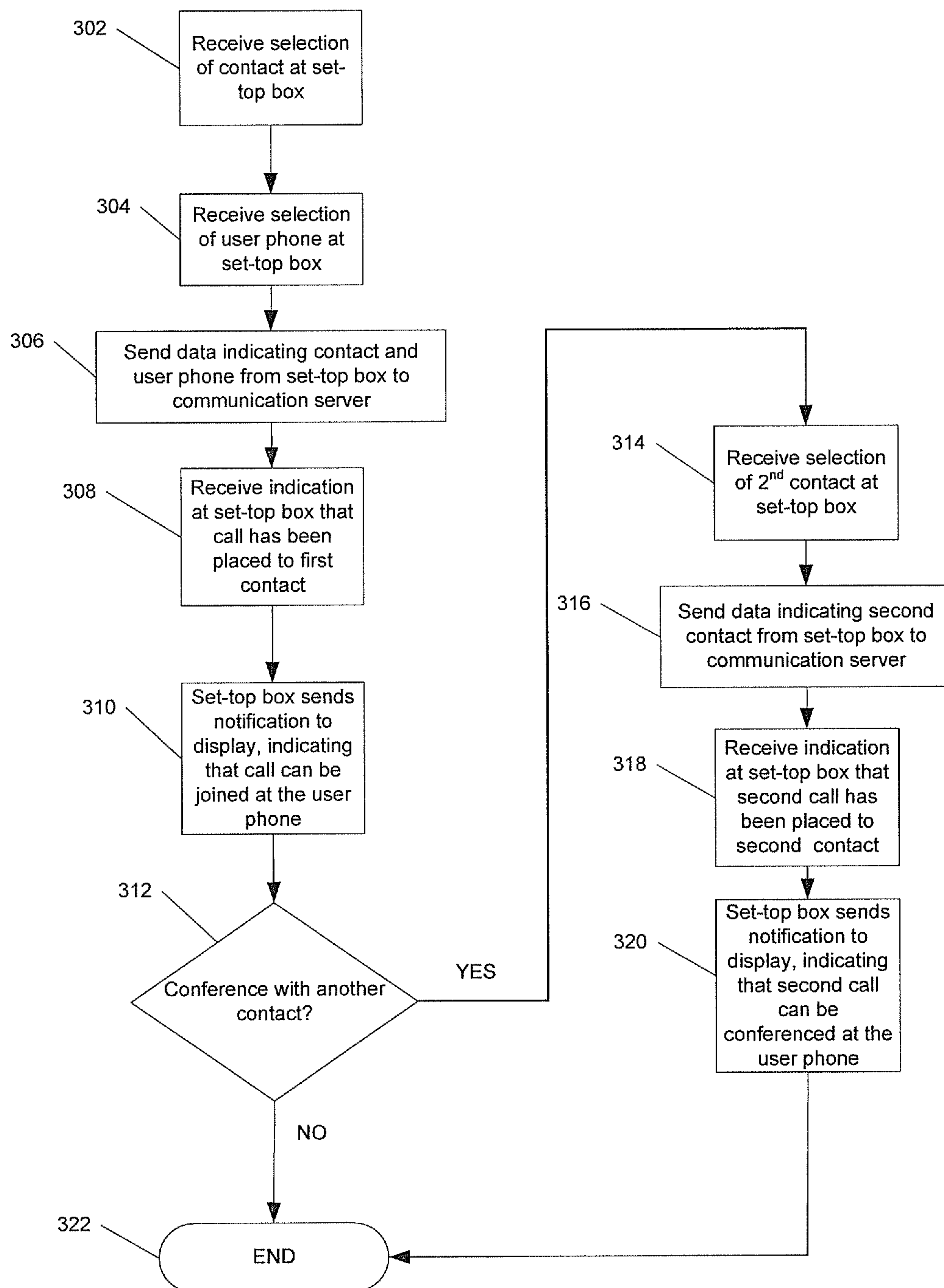


FIG. 3

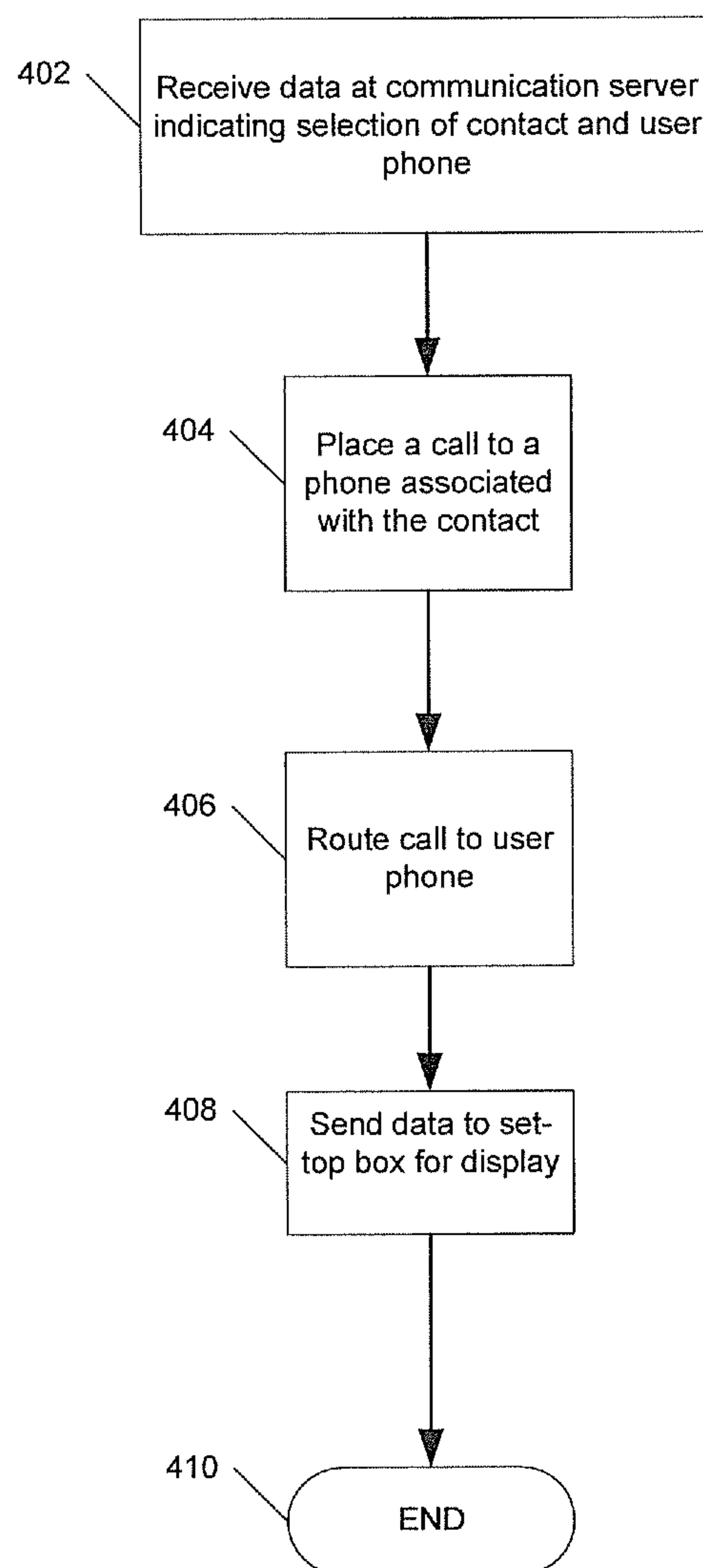


FIG. 4

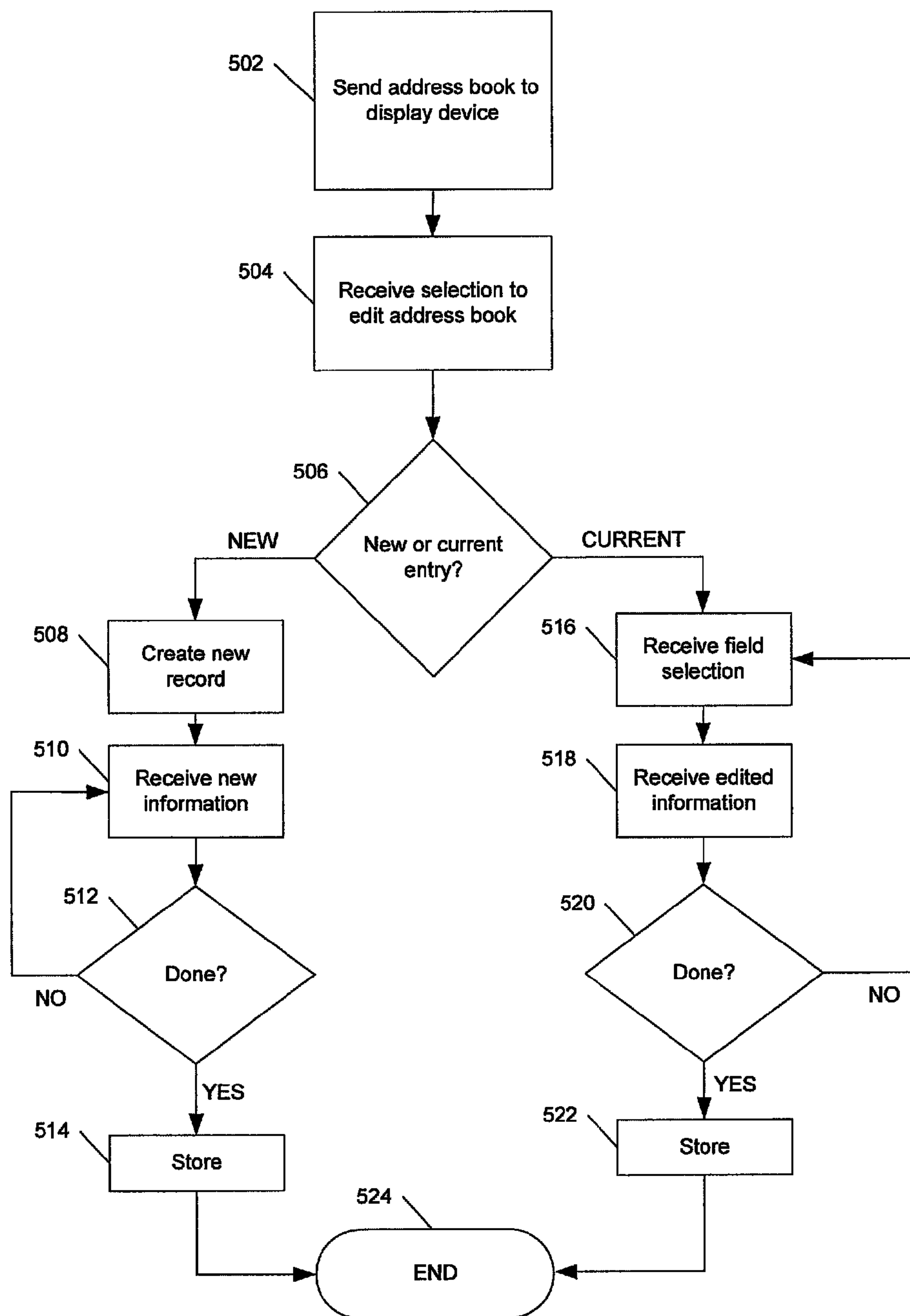


FIG. 5

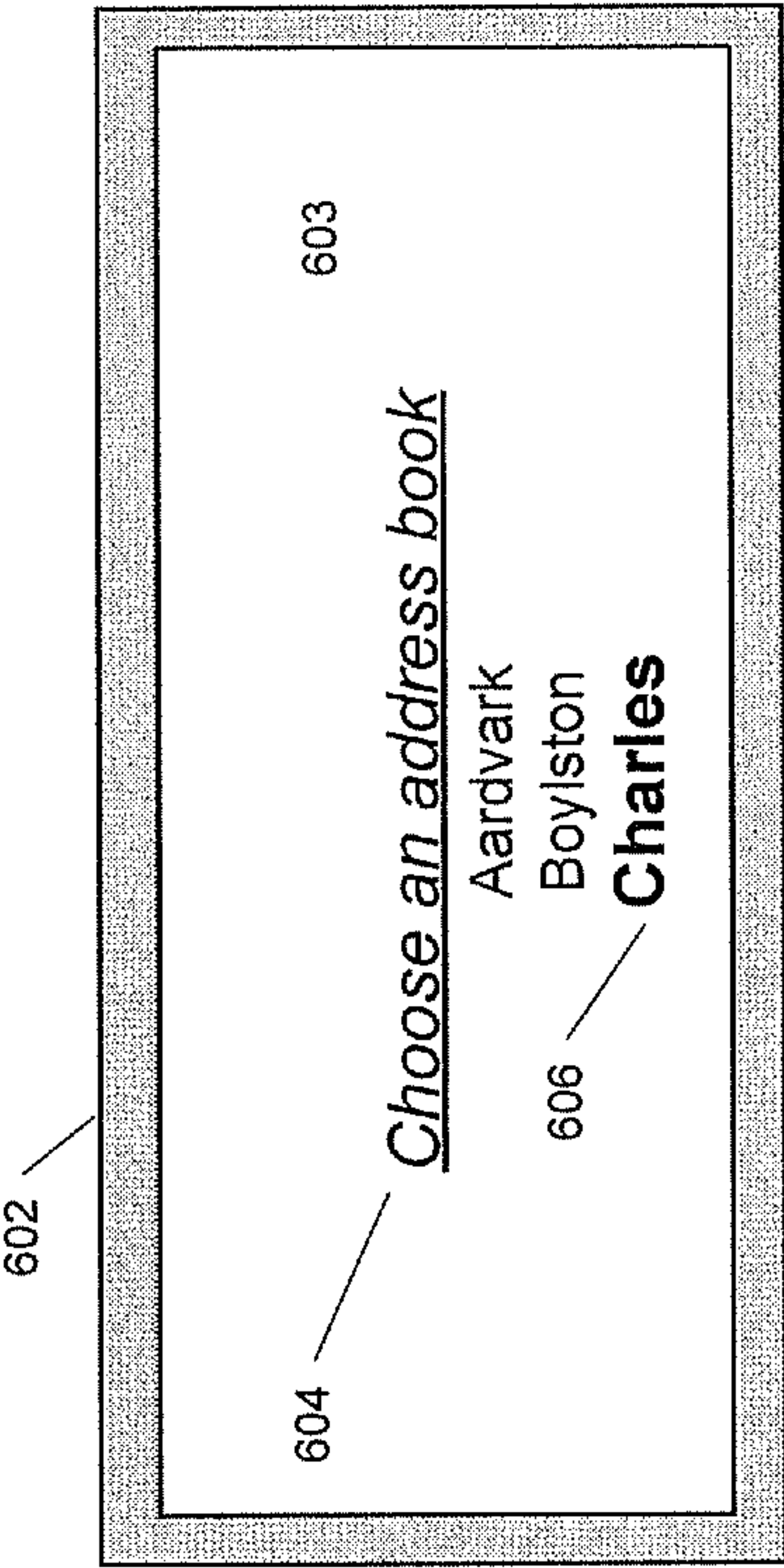


FIG. 6A

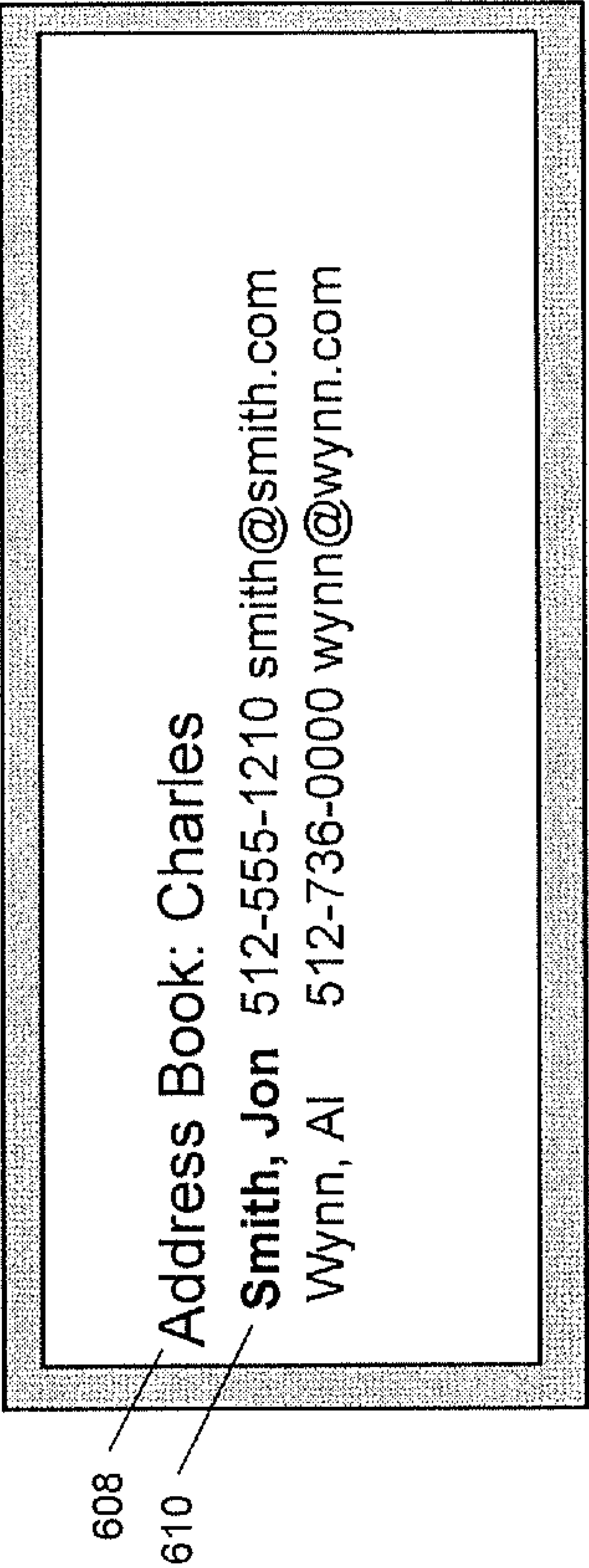


FIG. 6B

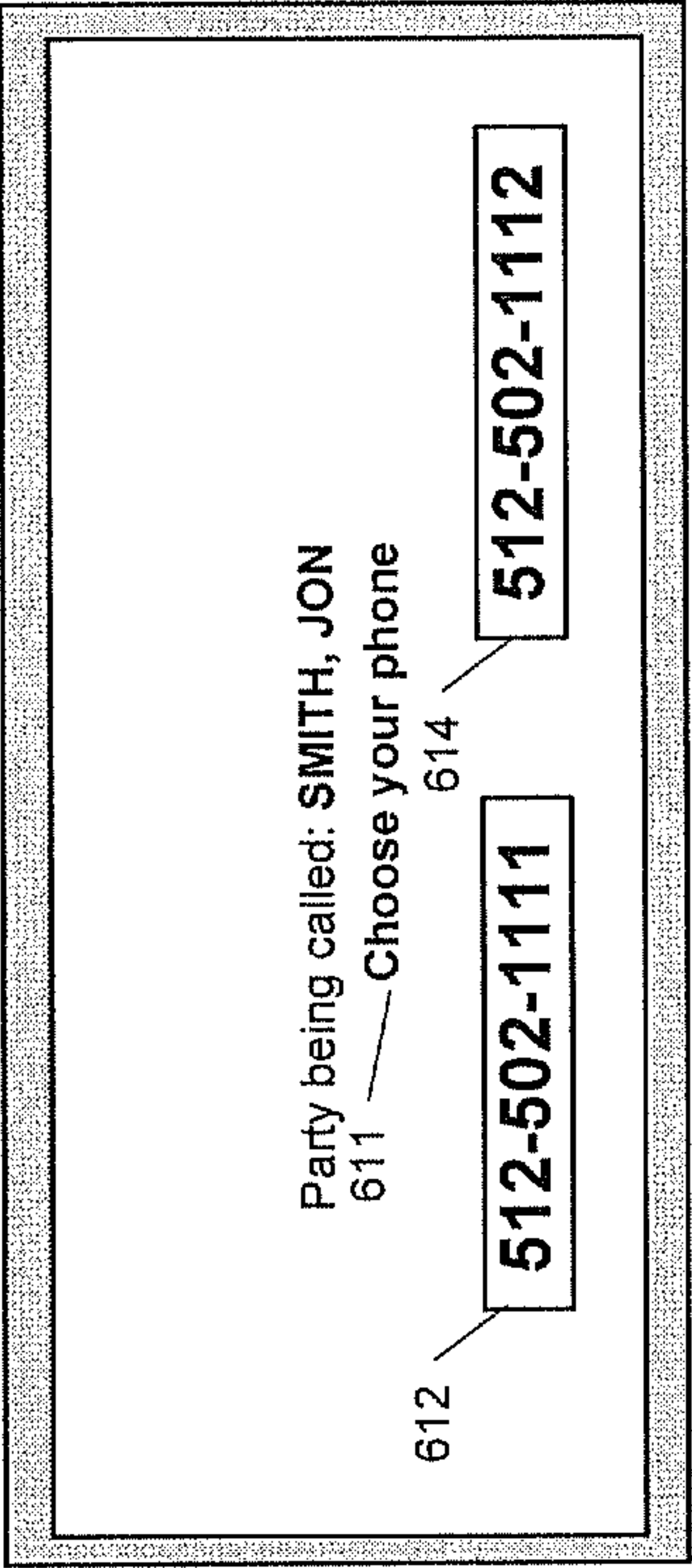


FIG. 6C

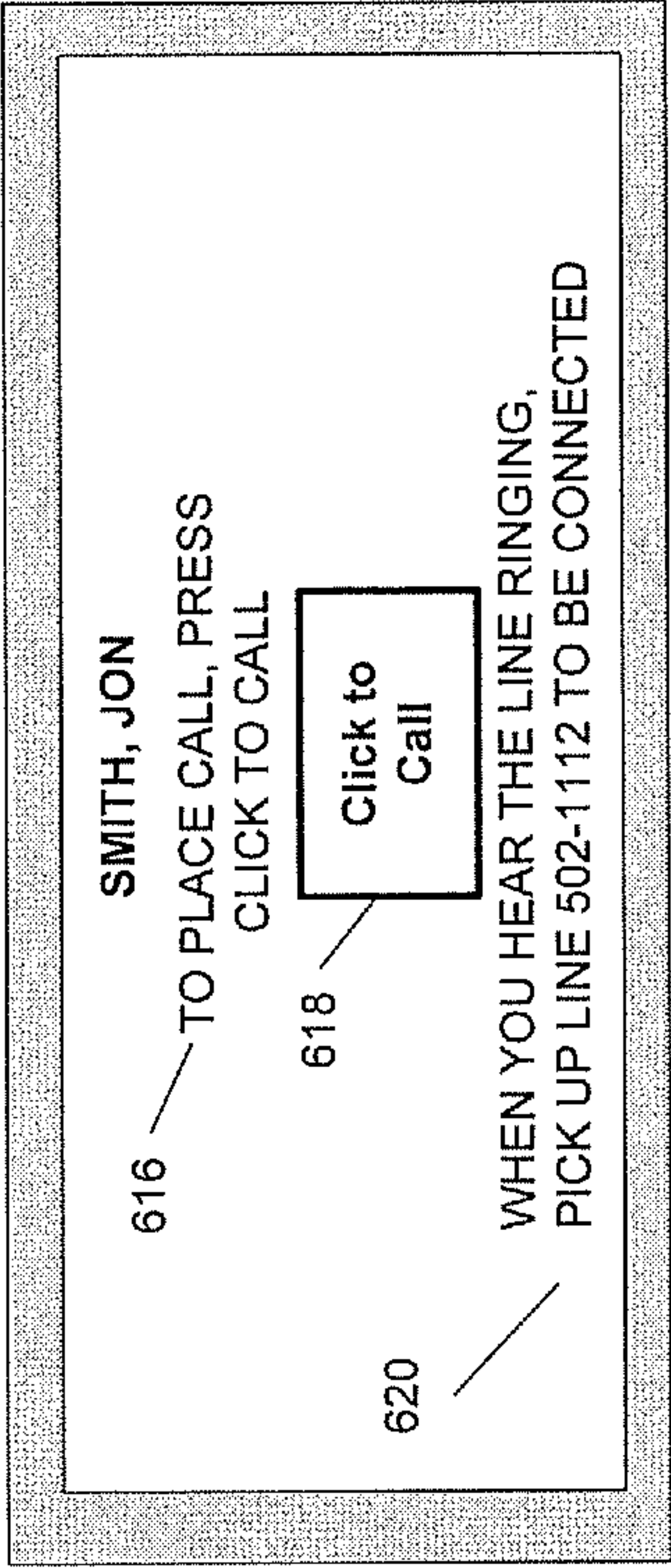


FIG. 6D

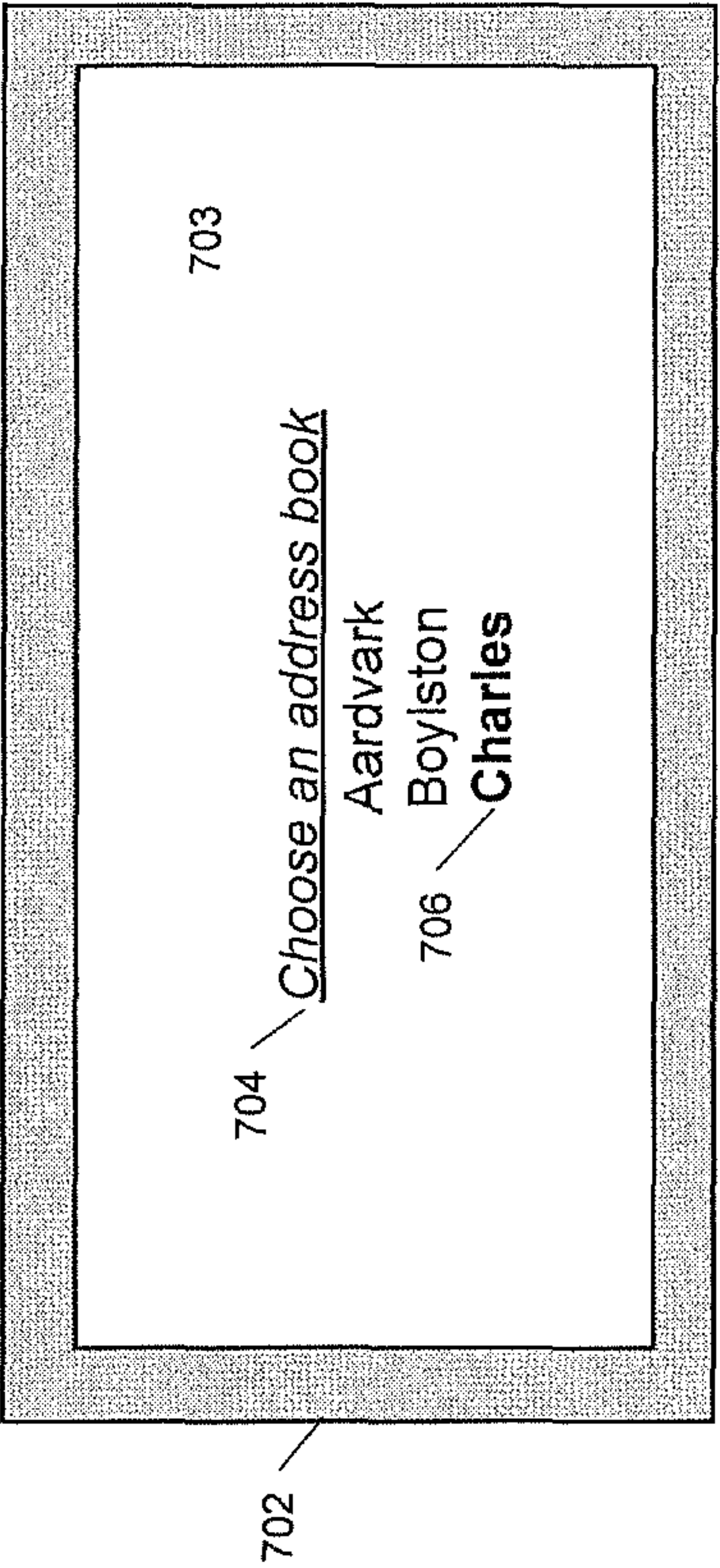


FIG. 7A

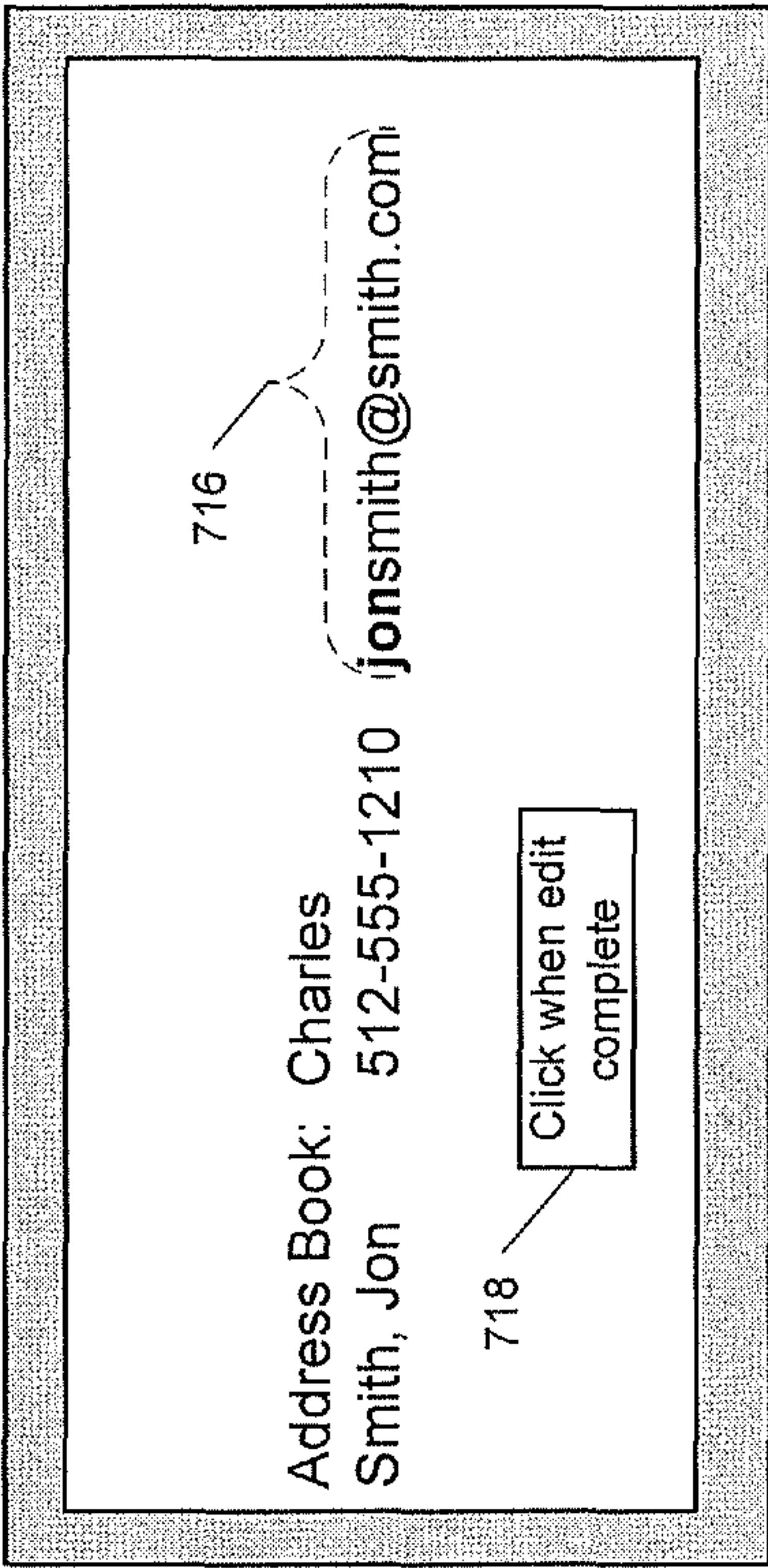


FIG. 7C

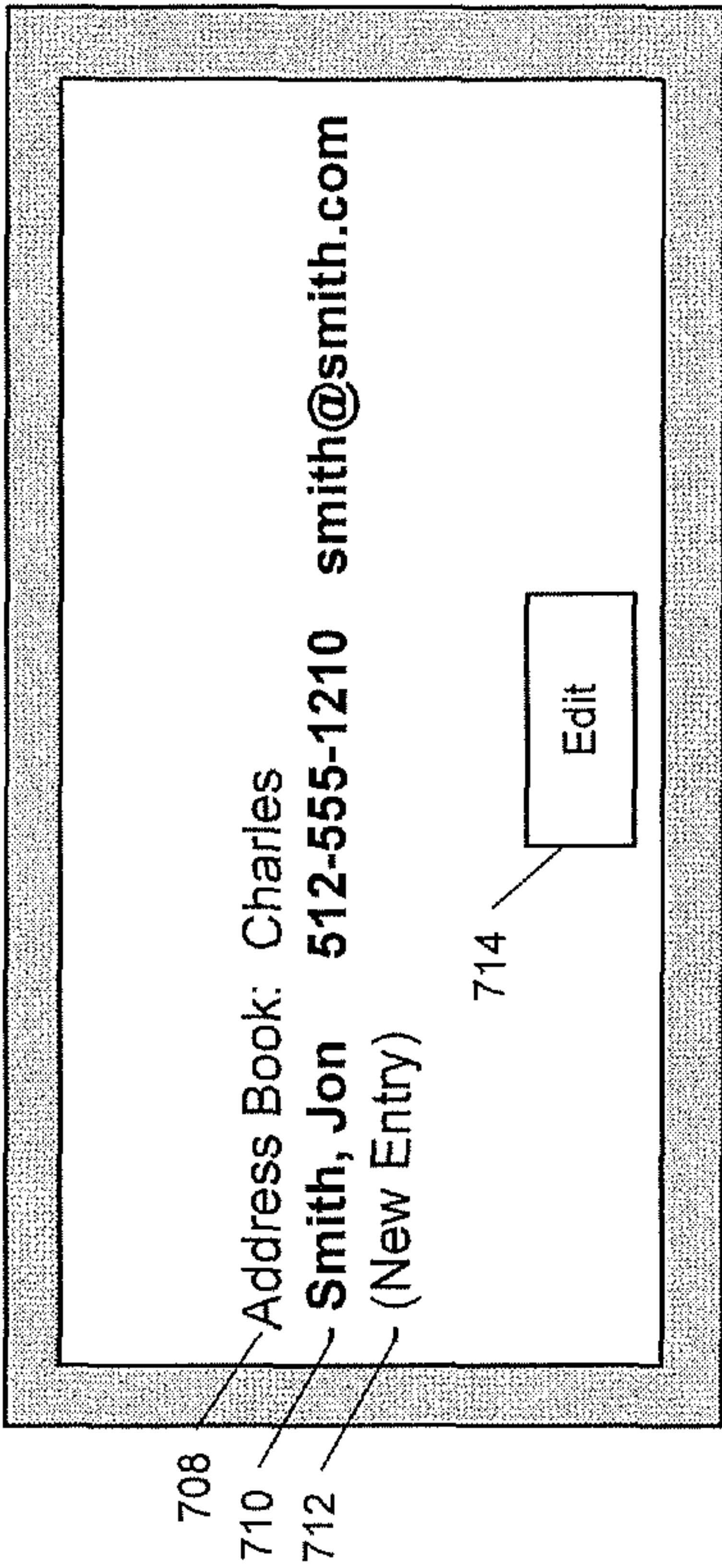


FIG. 7B

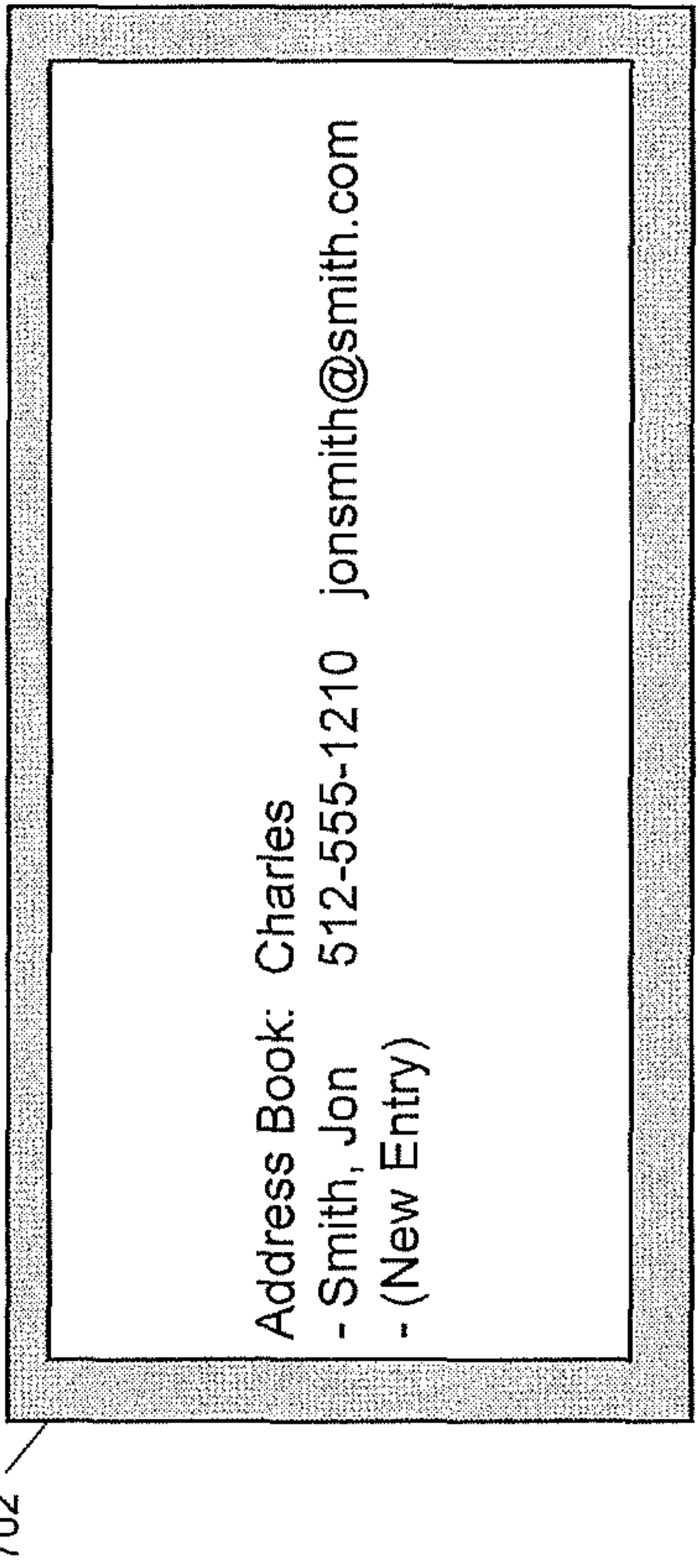


FIG. 7D

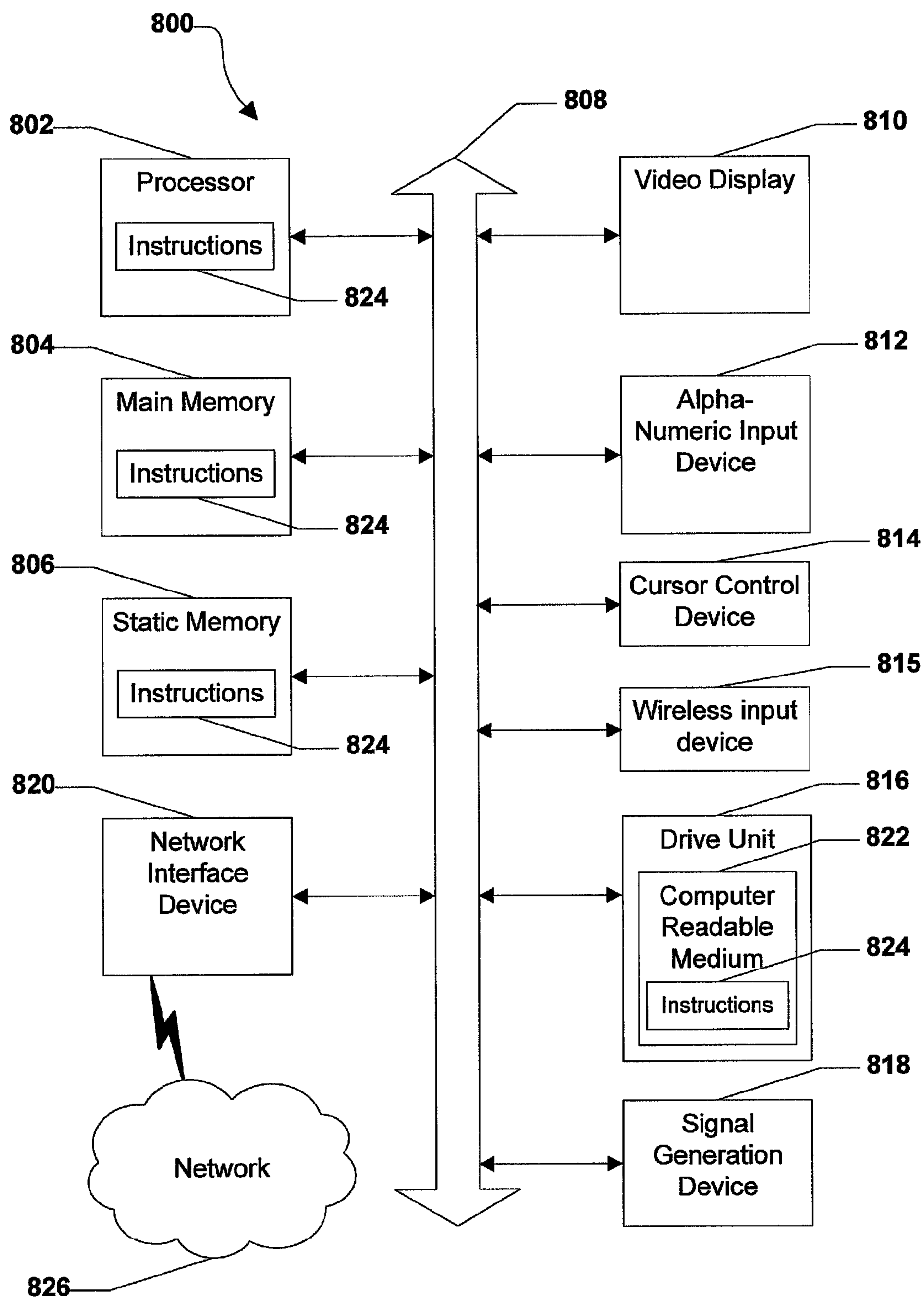


FIG. 8

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SYSTEM AND METHOD OF PROVIDING
VOICE COMMUNICATION

CLAIM OF PRIORITY

The present application is a continuation of and claims priority from U.S. patent application Ser. No. 11/586,482 filed on Oct. 25, 2006, the content of which is expressly incorporated herein by reference in its entirety.

FIELD OF THE DISCLOSURE

The present disclosure relates generally to providing voice communication.

BACKGROUND

Television viewing is part of daily life for many people. Individuals may prefer to make phone calls while watching television. Nonetheless, a caller may have to interrupt television viewing to look up a contact's phone number, for example, in a phone directory.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating a particular illustrative embodiment of a system to provide voice communication;

FIG. 2 is a block diagram illustrating a second particular illustrative embodiment of a system to provide voice communication;

FIG. 3 is a flow diagram depicting a particular illustrative embodiment of a method of providing voice communication;

FIG. 4 is a flow diagram depicting a second particular illustrative embodiment of a method of providing voice communication;

FIG. 5 is a flow diagram depicting a third particular illustrative embodiment of a method of providing voice communication;

FIG. 6A is a diagram illustrating a particular illustrative embodiment of a graphical user interface to provide voice communication;

FIG. 6B is a diagram illustrating a second particular illustrative embodiment of a graphical user interface to provide voice communication;

FIG. 6C is a diagram illustrating a third particular illustrative embodiment of a graphical user interface to provide voice communication;

FIG. 6D is a diagram illustrating a fourth particular illustrative embodiment of a graphical user interface to provide voice communication;

FIG. 7A is a diagram illustrating a particular illustrative embodiment of a graphical user interface to edit contact information;

FIG. 7B is a diagram illustrating a second particular illustrative embodiment of a graphical user interface to edit contact information;

FIG. 7C is a diagram illustrating a third particular illustrative embodiment of a graphical user interface to edit contact information;

FIG. 7D is a diagram illustrating a fourth particular illustrative embodiment of a graphical user interface to edit contact information; and

FIG. 8 is a diagram of an illustrative embodiment of a general computer system.

DETAILED DESCRIPTION

In a particular illustrative embodiment, a method includes receiving, at a device, a request to initiate a call with respect

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to a contact and a communication device associated with a caller. In a particular embodiment, the method may further include initiating presentation, at a display device, of a selectable call placement indicator to initiate the request. In another particular embodiment, the method may further include sending display data to the display device, where the display data indicates that the call has been placed to the contact.

In another particular embodiment, an apparatus includes a processor and a memory accessible to the processor. The memory includes instructions executable by the processor to receive a selection of a communication device associated with a caller. The memory may further include instructions executable by the processor to receive a request to imitate a call with respect to a contact and the communication device.

In a further particular embodiment, a method includes initiating presentation of a graphical user interface at a display device. The graphical user interface includes a selectable call placement indicator that, when selected, requests initiation of a call with respect to a contact and a communication device associated with a caller. The method may further include receiving a selection of the call placement indicator to request initiation of the call. In an exemplary embodiment, the method may further include sending request data to a server to initiate the call and sending display data to the display device in response to an indication that the call has been placed to the contact.

Referring to FIG. 1, an illustrative embodiment of an Internet Protocol Television (IPTV) system that may be used to provide voice communication is generally designated 100. As shown, the system 100 can include a client facing tier 102, an application tier 104, an acquisition tier 106, and an operations and management tier 108. Each tier 102, 104, 106, 108 is coupled to a private network 110; to a public network 112, such as the Internet; or to both the private network 110 and the public network 112. For example, the client-facing tier 102 can be coupled to the private network 110. Further, the application tier 104 can be coupled to the private network 110 and to the public network 112. The acquisition tier 106 can also be coupled to the private network 110 and to the public network 112. Additionally, the operations and management tier 108 can be coupled to the public network 112.

As illustrated in FIG. 1, the various tiers 102, 104, 106, 108 communicate with each other via the private network 110 and the public network 112. For instance, the client-facing tier 102 can communicate with the application tier 104 and the acquisition tier 106 via the private network 110. The application tier 104 can communicate with the acquisition tier 106 and the operations and management tier 108 via the public network 112. Moreover, the acquisition tier 106 can communicate with the operations and management tier 108 via the public network 112. In a particular embodiment, elements of the application tier 104, including, but not limited to, a client gateway 150, can communicate directly with the client-facing tier 102.

The client-facing tier 102 can communicate with user equipment via an access network 166, such as an Internet Protocol Television (IPTV) access network. In an illustrative embodiment, customer premises equipment (CPE) 114, 122 can be coupled to a local switch, router, or other device of the access network 166. The client-facing tier 102 can communicate with a first representative set-top box device 116 via the first CPE 114 and with a second representative set-top box device 124 via the second CPE 122. One or more user phones 176 may be coupled to the Customer Premises Equipment (CPE) 122. In a particular embodiment, the first representative set-top box device 116 and the first CPE 114 can be

located at a first customer premise, and the second representative set-top box device **124** and the second CPE **122** can be located at a second customer premise. In another particular embodiment, the first representative set-top box device **116** and the second representative set-top box device **124** can be located at a single customer premise, both coupled to one of the CPE **114**, **122**.

The CPE **114**, **122** can include routers, local area network devices, modems, such as digital subscriber line (DSL) modems, any other suitable devices for facilitating communication between a set-top box device, the access network **166**, and the user phone(s) **176**, or any combination thereof. In an exemplary embodiment, the client-facing tier **102** can be coupled to the CPE **114**, **122** via fiber optic cables. In another exemplary embodiment, the CPE **114**, **122** can be digital subscriber line (DSL) modems that are coupled to one or more network nodes via twisted pairs, and the client-facing tier **102** can be coupled to the network nodes via fiber-optic cables. Each set-top box device **116**, **124** can process data received via the access network **166**, via an IPTV software platform, such as Microsoft® TV IPTV Edition.

The first set-top box device **116** can be coupled to a first external display device, such as a first television monitor **118**, and the second set-top box device **124** can be coupled to a second external display device, such as a second television monitor **126**. Moreover, the first set-top box device **116** can communicate with a first remote control **120**, and the second set-top box device **124** can communicate with a second remote control **128**. The set-top box devices **116**, **124** can include IPTV set-top box devices; video gaming devices or consoles that are adapted to receive IPTV content; personal computers or other computing devices that are adapted to emulate set-top box device functionalities; any other device adapted to receive IPTV content and transmit data to an IPTV system via an access network; or any combination thereof.

In an exemplary, non-limiting embodiment, each set-top box device **116**, **124** can receive data, video, or any combination thereof, from the client-facing tier **102** via the access network **166** and render or display the data, video, or any combination thereof, at the display device **118**, **126** to which it is coupled. In an illustrative embodiment, the set-top box devices **116**, **124** can include tuners that receive and decode television programming signals or packet streams for transmission to the display devices **118**, **126**. Further, the set-top box devices **116**, **124** can include a STB processor **170** and a STB memory device **172** that is accessible to the STB processor **170**. In one embodiment, a computer program, such as the STB computer program **174**, can be embedded within the STB memory device **172**.

In an illustrative embodiment, the client-facing tier **102** can include a client-facing tier (CFT) switch **130** that manages communication between the client-facing tier **102** and the access network **166** and between the client-facing tier **102** and the private network **110**. As illustrated, the CFT switch **130** is coupled to one or more data servers, such as D-servers **132**, that store, format, encode, replicate, or otherwise manipulate or prepare video content for communication from the client-facing tier **102** to the set-top box devices **116**, **124**. The CFT switch **130** can also be coupled to a terminal server **134** that provides terminal devices with a connection point to the private network **110**. In a particular embodiment, the CFT switch **130** can be coupled to a video-on-demand (VOD) server **136** that stores or provides VOD content imported by the IPTV system **100**. Further, the CFT switch **130** is coupled to one or more video servers **180** that send the video content to the set-top boxes **116**, **124** via the access network **166**. In a particular embodiment, the CFT switch **130** can be coupled to

a video-on-demand (VOD) server **136** that stores or provides VOD content imported by the IPTV system **100**. Further, the CFT switch **130** is coupled to one or more multicast video servers **180** that receive video content and multicast the video content to the set-top boxes **116**, **124** via the access network **166**.

In an illustrative embodiment, the client-facing tier **102** can communicate with a large number of set-top boxes via the access network **166**, such as the representative set-top boxes **116**, **124**, over a wide geographic area, such as a neighborhood area, a metropolitan area, a viewing area, a statewide area, a regional area, a nationwide area or any other suitable geographic area, market area, or subscriber or customer group that can be supported by networking the client-facing tier **102** to numerous set-top box devices. In a particular embodiment, the CFT switch **130**, or any portion thereof, can include a multicast router or switch that communicates with multiple set-top box devices via a multicast-enabled network.

As illustrated in FIG. 1, the application tier **104** can communicate with both the private network **110** and the public network **112**. The application tier **104** can include a first application tier (APP) switch **138** and a second APP switch **140**. In a particular embodiment, the first APP switch **138** can be coupled to the second APP switch **140**. The first APP switch **138** can be coupled to an application server **142** and to an operation systems and support (OSS)/billing systems and support (BSS) gateway **144**. In a particular embodiment, the application server **142** can provide applications to the set-top box devices **116**, **124** via the access network **166**, which enable the set-top box devices **116**, **124** to provide functions, such as interactive program guides, video gaming, display, messaging, processing of VOD material and other IPTV content, etc. In a particular embodiment, the OSS/BSS gateway **144** includes operation systems and support (OSS) data, as well as billing systems and support (BSS) data. In one embodiment, the OSS/BSS gateway **144** can provide or restrict access to an OSS/BSS server **164** that stores operations and billing systems data.

The second APP switch **140** can be coupled to a domain controller **146** that provides Internet access, for example, to users at their computers via the public network **112**. For example, the domain controller **146** can provide remote Internet access to IPTV account information, e-mail, personalized Internet services, or other online services via the public network **112**. In addition, the second APP switch **140** can be coupled to a subscriber and system store **148** that includes account information, such as account information that is associated with users who access the IPTV system **100** via the private network **110** or the public network **112**. In an illustrative embodiment, the subscriber and system store **148** can store subscriber or customer data and create subscriber or customer profiles that are associated with IP addresses, stock-keeping unit (SKU) numbers, other identifiers, or any combination thereof, of corresponding set-top box devices **116**, **124**. Further, the second APP switch **140** can communicate with phones **168**, **169**, **178**, **186** via the public network **112**, a plain old telephone service (POTS) **179**, data network **182** and wireless access point **184**, or any combination thereof. Moreover, the second APP switch **140** can be coupled to a subscriber and system store **148** that includes account information, such as account information that is associated with users who access the IPTV system **100** via the private network **110** or the public network **112**. The second APP switch **140** can be coupled to a communication server **149** that is adapted to establish communication between the phone **168** of a selected contact, and a user phone **176**. A communication

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server 149 can communicate with phones 168, 169 over the public network 112 via the second APP switch 140.

In an illustrative, non-limiting embodiment, phones 168 and 169, which may be phones associated with a contact entry in a network address book or other address book, can communicate with the IPTV system 100 via the public network 112. In another illustrative, non-limiting embodiment, wireless phone 186, which may be a phone associated with a contact entry in a network address book or other address book, can communicate with the IPTV system 100 via a wireless access point 184 and data port 182 to the communication server 149. In yet another illustrative, non-limiting embodiment, phone 178, which may be a phone associated with a contact entry in a network address book or other address book, can communicate with the IPTV system 100 via a plain old telephone service (POTS) 179 to the communication server 149.

In a particular embodiment, the application tier 104 can include a client gateway 150 that communicates data directly to the client-facing tier 102. In this embodiment, the client gateway 150 can be coupled directly to the CFT switch 130. The client gateway 150 can provide user access to the private network 110 and the tiers coupled thereto. In an illustrative embodiment, the set-top box devices 116, 124, or other devices coupled to the CPE 114, 122, can access the IPTV system 100 via the access network 166, using information received from the client gateway 150. User devices can access the client gateway 150 via the access network 166, and the client gateway 150 can allow such devices to access the private network 110 once the devices are authenticated or verified. Similarly, the client gateway 150 can prevent unauthorized devices, such as hacker computers or stolen set-top box devices from accessing the private network 110, by denying access to these devices beyond the access network 166.

For example, when the first representative set-top box device 116 accesses the client-facing tier 102 via the access network 166, the client gateway 150 can verify subscriber information by communicating with the subscriber and system store 148 via the private network 110. Further, the client gateway 150 can verify billing information and status by communicating with the OSS/BSS gateway 144 via the private network 110. In one embodiment, the OSS/BSS gateway 144 can transmit a query via the public network 112 to the OSS/BSS server 164. After the client gateway 150 confirms subscriber and/or billing information, the client gateway 150 can allow the set-top box device 116 to access IPTV content and VOD content at the client-facing tier 102. If the client gateway 150 cannot verify subscriber information for the set-top box device 116, e.g., because it is connected to an unauthorized twisted pair, the client gateway 150 can block transmissions to and from the set-top box device 116 beyond the access network 166.

As indicated in FIG. 1, the acquisition tier 106 includes an acquisition tier (AQT) switch 152 that communicates with the private network 110. The AQT switch 152 can also communicate with the operations and management tier 108 via the public network 112. In a particular embodiment, the AQT switch 152 can be coupled to a live acquisition server 154 that receives or acquires television content, movie content, advertisement content, other video content, or any combination thereof, from a broadcast service 156, such as a satellite acquisition system or satellite head-end office. In a particular embodiment, the live acquisition server 154 can transmit content to the AQT switch 152, and the AQT switch 152 can transmit the content to the CFT switch 130 via the private network 110.

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In an illustrative embodiment, content can be transmitted to the D-servers 132, where it can be encoded, formatted, stored, replicated, or otherwise manipulated and prepared for communication from the video server(s) 180 to the set-top box devices 116, 124. The CFT switch 130 can receive content from the video server(s) 180 and communicate the content to the CPE 114, 122 via the access network 166. The set-top box devices 116, 124 can receive the content via the CPE 114, 122, and can transmit the content to the television monitors 118, 126. In an illustrative embodiment, video or audio portions of the content can be streamed to the set-top box devices 116, 124.

Further, the AQT switch 152 can be coupled to a video-on-demand importer server 158 that receives and stores television or movie content received at the acquisition tier 106 and communicates the stored content to the VOD server 136 at the client-facing tier 102 via the private network 110. Additionally, at the acquisition tier 106, the video-on-demand (VOD) importer server 158 can receive content from one or more VOD sources outside the IPTV system 100, such as movie studios and programmers of non-live content. The VOD importer server 158 can transmit the VOD content to the AQT switch 152, and the AQT switch 152, in turn, can communicate the material to the CFT switch 130 via the private network 110. The VOD content can be stored at one or more servers, such as the VOD server 136.

When users issue requests for VOD content via the set-top box devices 116, 124, the requests can be transmitted over the access network 166 to the VOD server 136, via the CFT switch 130. Upon receiving such requests, the VOD server 136 can retrieve the requested VOD content and transmit the content to the set-top box devices 116, 124 across the access network 166, via the CFT switch 130. The set-top box devices 116, 124 can transmit the VOD content to the television monitors 118, 126. In an illustrative embodiment, video or audio portions of VOD content can be streamed to the set-top box devices 116, 124.

FIG. 1 further illustrates that the operations and management tier 108 can include an operations and management tier (OMT) switch 160 that conducts communication between the operations and management tier 108 and the public network 112. In the embodiment illustrated by FIG. 1, the OMT switch 160 is coupled to a TV2 server 162. Additionally, the OMT switch 160 can be coupled to an OSS/BSS server 164 and to a simple network management protocol (SNMP) monitor 186 that monitors network devices within or coupled to the IPTV system 100. In a particular embodiment, the OMT switch 160 can communicate with the AQT switch 152 via the public network 112.

In an illustrative embodiment, the live acquisition server 154 can transmit content to the AQT switch 152, and the AQT switch 152, in turn, can transmit the content to the OMT switch 160 via the public network 112. In this embodiment, the OMT switch 160 can transmit the content to the TV2 server 162 for display to users accessing the user interface at the TV2 server 162.

In a particular embodiment, a set-top box 124 receives a selection of a first contact associated with the phone 168, with the phone 169, with the phone 178, or with wireless phone 186. The set-top box 124 may receive a selection of a user phone 176. The selection(s) are communicated to the communication server 149, which places a call to the phone associated with the first contact and routes the call to the user phone 176. The communication server 149 sends data to the set-top box 124 indicating that a call has been placed to the first contact. The set-top box device 124 receives the data indicating that the call has been placed, and the set-top box

device **124** sends data to a display device **126** indicating that the first call has been placed to the first contact at phone **168**. In an illustrative embodiment, the display device **126** can display a message indicating that the call can be joined at the user phone **176**.

In another illustrative embodiment, after the call has been placed, the set-top box device **124** can receive another selection of a second contact. The other selection can be communicated to the communication server **149**, which places a call to the second contact at, for example, phone **178** (via the POTS network **179**), and routes the call to the user phone **176**, forming a conference call with the phone **168**, for example, the user phone **176**, and the phone **178**. The communication server **149** sends data to the set-top box device **124** indicating that a call has been placed to the second contact. The set-top box device **124** receives the data indicating that the call has been placed, and the set-top box device sends data to the display device **126** indicating that the second call has been placed to the second contact. As a result of forming the conference call, three or more parties, such as the user, the first contact, and the second contact, can communicate with each other simultaneously.

Referring to FIG. 2, a second particular illustrative embodiment of a system to provide voice communication is illustrated and designated generally at **200**. The system **200** includes a set-top box device **202** that communicates with a communication server **230** via an access network **228**, such as a private access network of an Internet Protocol Television system. One or more user phones **226**, **227**, can also communicate with the communication server **230** via the access network **220**. In an illustrative embodiment, the set-top box device **202** and the user phones **226**, **227** can be coupled to network access Consumer Premises Equipment (CPE) **224**.

The set-top box device **202** includes a processor **204** and a memory device **206** accessible to the processor **204**. In a particular embodiment, the memory device **206** can include a contact selection module **208** executable by the processor **204** to receive a selection of a contact. In an illustrative embodiment, selection of the contact may include selection of a name, phone number, email address, street address, photograph, or any combination thereof. For example, the contact may be chosen from any of a plurality of address books such as a network address book.

In a particular embodiment, the memory device **206** can include an Internet Protocol Television (IPTV) system communication module **210** executable by the processor **204** to determine whether a call has been placed to the contact, e.g., by receiving data from the communication server **230** indicating that the contact is available to be joined to a user phone.

In a particular embodiment, the memory device **206** can include a call prompt display module **212** executable by the processor **204** to send data to a display device coupled to the set-top box device **202**, the data indicating that the call has been placed to the contact. In a particular illustrative embodiment, the display device may be a television **220** coupled to the set-top box device **202** via a display interface **218**.

In a particular embodiment, the memory device **206** can include a user phone selection module **213** executable by the processor **204** to receive selection of a user phone, such as the phone **226** or the phone **227**.

In a particular embodiment the set-top box device **202** may also contain a remote interface **214**, operative to receive commands from a remote device **216**.

In an illustrative embodiment, the STB processor **204** can communicate with the communication server **230** via the network interface **222**. In a particular embodiment, network access customer premises equipment (CPE) **224** can facilitate

communication, via access network **228**, between the network interface **222** and the communication server **230**. The network access CPE **224** can include a router, a local area network device, a modem, such as a digital subscriber line (DSL) modem, and any other suitable device or any combination thereof to facilitate communication between the network interface **222** of the set-top box device **202** and the communication server **230**.

The communication server **230** includes a communication server processor **242** and a memory device **232** accessible to the communication server processor **242**. In a particular embodiment, the memory device **232** can include a set-top box communication module **234** executable by the communication server processor **242** to communicate with the set-top box device **202** to receive data indicating selection of a contact.

In a particular embodiment, the memory device **232** can include a dialer module **236** executable by the communication server processor **242** to place a call to a phone associated with a selected contact, and to route the call to the user phone **226**, the user phone **227**, or any combination thereof.

In a particular embodiment, the memory device **232** can include an address book access module **238**, executable by the communication server processor **242** to access an address book. The communication server **230** can send data from the address book to the set-top box device **202** so that a user can make a selection of a contact. In an illustrative embodiment, the address book may be a network address book containing a plurality of contacts from which a contact may be chosen.

In a particular embodiment, the memory device **232** can include an information editing module **240**, executable by the communication server processor **242** to receive edited information from the set-top box device **202** and to edit an entry residing in an address book. In an illustrative non-limiting embodiment, information editing module **240** can be executable by the communication server processor **242** to edit a field that is part of a contact entry within the network address book.

In an illustrative embodiment, the communication server **230** may receive data indicating selection of a contact and a selection of a user phone **226** from the set-top box device **202**. The communication server **230** then accesses an address book, such as a network address book, to retrieve contact information such as a telephone number for the chosen contact. The communication server **230** places a call to a phone associated with the contact and to the user phone **226**. The communication server **230** sends data to the set-top box device **202** via the access network **228** and the network access CPE **224**, indicating that the call has been placed to the phone associated with the contact, and is joined to the user phone **226**.

Referring to FIG. 3, a particular illustrative embodiment of a method of providing voice communication is shown. At block **302**, a selection of a contact is received at a set-top box device. Moving to block **304**, the set-top box device receives a selection of a user phone. In an illustrative, non-limiting embodiment, the user may choose one of a plurality of phones. Proceeding to block **306**, the set-top box device sends data to a communication server, the data indicating the contact and the user phone. Advancing to block **308**, the set-top box device receives data indicating that the call has been placed to the first contact.

At block **310**, the set-top box device sends a notification to a display device coupled to the set-top box device, indicating that the call can be joined at the selected user phone. In an illustrative embodiment, a selection of a call placement indicator can be received at the set-top box device before sending the data indicating the contact and user phone, to the commu-

nication server. In a particular non-limiting embodiment, the call placement indicator may be a “click-to-call” or similar graphic indicator.

Continuing to decision node **312**, in a particular embodiment, the set-top box device can determine whether another contact is to be conferenced with the call. If the set-top box device determines that there is not another contact to be conferenced with the call, the method terminates at **322**. On the other hand, if the set-top box device determines that another contact is to be conferenced with the call, the method proceeds to block **314** and a selection of a second contact may be received at the set-top box device. Moving to block **316**, the set-top box device sends data to the communication server indicating the second contact. At block **318**, the set-top box device receives data indicating that a call has been placed to the second contact. At block **320**, the set-top box device sends a notification to the display device indicating that the call can be conferenced at the user phone. The method terminates at **322**.

Referring to FIG. 4, a second particular illustrative embodiment of a method of providing voice communication is illustrated. At block **402**, a communication server of an Internet Protocol Television (IPTV) system receives data from a set-top box device indicating a selection of a contact. In an illustrative embodiment, the communication server may receive a contact selected from one of a plurality of sources that may include but are not limited to a network address book, a call log, or a voice mail indicator, each of which may be stored at the IPTV system and communicated to the set-top box device for display. Moving to block **404**, the communication server places a call to the selected contact and routes the call to a user phone at block **406**. In a particular embodiment, the communication server can receive data indicating a selection of the user phone, which may be chosen from a plurality of user phones. Proceeding to block **408**, the communication server sends data to a set-top box device indicating that the call has been placed. The method terminates at **410**.

Referring to FIG. 5, an illustrative embodiment of a method of editing contact information is illustrated. At block **502** a set-top box device sends an address book to a display device. In a non-limiting illustrative embodiment, the address book may be a network address book. Moving to block **504**, the set-top box device receives a selection to edit the address book. At decision node **506**, the set-top box device determines whether a new entry or an entry currently within the address book is to be edited. If a new entry is to be edited, the method proceeds to block **508**, and a new record can be created. At block **510**, information related to the contact is received. Moving to decision node **512**, the set-top box device determines whether all new information has been received, e.g., the set-top box device can query the user to indicate whether data in all desired fields is entered. If additional data is to be entered, the method returns to block **510** and the set-top box device receives information related to the contact, until all of the data is received. At block **514**, the new information is stored as a new record. The record can be stored at the set-top box, at the communication server, or at both. The method terminates at **524**.

Returning to decision node **506**, if a current entry is to be edited, the method proceeds to block **516**, and a selection of a field to be edited can be received. At block **518**, the edited information related to the field is received. At decision node **520**, set-top box device determines whether all edited information has been received, e.g., the set-top box device can query the user to indicate whether data in all desired fields is entered. If additional edited information is to be received, the

method returns to block **516** and proceeds to block **518**, the set-top box device receiving information related to the phone contact until all of the data is received. When edits are complete, at block **522** the edited information within the fields is stored. The record can be stored at the set-top box, at the communication server, or at both. The method terminates at **524**.

Referring to FIG. 6A, a diagram illustrating a particular illustrative embodiment of a graphical user interface to provide voice communication is illustrated. A graphical user interface (GUI) **602** includes an address book selection region **603**. The address book selection region **603** can include a prompt **604** to select an address book **606** from a plurality of address books. Address book “Charles” has been highlighted by a user, and clicking on the highlighted name can select the highlighted address book.

Referring to FIG. 6B, a diagram illustrating a particular illustrative embodiment of a graphical user interface to provide voice communication is illustrated. A heading **608** indicates that address book “Charles” is being presented on the screen display. An address book entry **610** “Smith, Jon” has been highlighted by a user, and can be clicked to be selected.

Referring to FIG. 6C, a diagram illustrating a particular illustrative embodiment of a graphical user interface to provide voice communication is illustrated. A prompt **611** asks the user to choose a user phone on which to complete the call. The user phone may be selected by clicking on a soft button **612** or a soft button **614**.

Referring to FIG. 6D, a diagram illustrating a particular illustrative embodiment of a graphical user interface to provide voice communication is illustrated. A prompt **616** asks to place the call by clicking on a soft button **618** entitled “Click to Call”. A prompt **620** advises the user to pick up the selected user phone when the line is ringing. In an illustrative embodiment, the ringing may be sent from a set-top box device to a display device for the user to hear.

Referring to FIG. 7A, a diagram illustrating a particular illustrative embodiment of a graphical user interface (GUI) to provide voice communication is illustrated. A graphical user interface (GUI) **702** includes an address book selection region **703**. The address book selection region **703** can include a prompt **704** to select an address book **706** from a plurality of address books. Address book “Charles” has been highlighted by a user, and clicking on the highlighted name can select the highlighted address book.

Referring to FIG. 7B, a diagram illustrating a particular illustrative embodiment of a graphical user interface (GUI) to provide voice communication an embodiment is illustrated. A heading **708** indicates that address book “Charles” is being presented on the screen display. An address book entry **710** “Smith, Jon” has been highlighted by a user. (Alternatively, a new entry line **712** may be chosen via highlighting, enabling a user to enter a new contact into the address book). A soft button **714** can be selected by the user to initiate editing of the highlighted address book entry **710**.

Referring to FIG. 7C, a diagram illustrating a particular illustrative embodiment of a graphical user interface (GUI) to provide voice communication an embodiment is illustrated. A region **716** displays an edited email address for Jon Smith. A soft button **718** may be selected via clicking, when editing of entry fields has been completed.

Referring to FIG. 7D, a diagram illustrating a particular illustrative embodiment of a graphical user interface (GUI) to provide voice communication is illustrated. The graphical user interface **702** displays the address book, wherein edits have been accepted.

In conjunction with the configuration of structure described herein, the system and method disclosed provides voice communication between two or more phones or other devices such as computers. In an illustrative embodiment, the user can select a contact by clicking on one or more soft buttons displayed via a graphical user interface. The set-top box device receives the selection data and sends the selection data to a communication server of an Internet Protocol Television (IPTV) system, which receives the data and places a call to the selected contact. The communication server sends data to the set-top box device indicating that the call has been placed. The set-top box device sends a notification that the call has been placed to the display device.

In a particular illustrative embodiment, a user phone is selected and input via the graphical user interface to the set-top box device. Data representing the user phone selected is sent to the communication server prior to dialing the phone number associated with the contact, and the communication server routes the connection between the selected contact and the selected user phone.

Referring to FIG. 8, an illustrative embodiment of a general computer system is shown and is designated **800**. The computer system **800** can include a set of instructions that can be executed to cause the computer system **800** to perform any one or more of the methods or computer based functions disclosed herein. The computer system **800**, or any portion thereof, may operate as a stand-alone device or may be connected, e.g., using a public network, such as the Internet, or a private network, to other computer systems or peripheral devices such as a set-top box device, communication server, or a phone, as depicted in FIGS. 1-2.

In a networked deployment, the computer system may operate in the capacity of a server or as a client user computer in a server-client user network environment, or as a peer computer system in a peer-to-peer (or distributed) network environment. The computer system **800** can also be implemented as or incorporated into various devices, such as a personal computer (PC), a tablet PC, a set-top box device (STB), a personal digital assistant (PDA), a mobile device, a palmtop computer, a laptop computer, a desktop computer, a communications device, a wireless phone, a land-line phone, a control system, a camera, a scanner, a facsimile machine, a printer, a pager, a personal trusted device, a web appliance, a network router, switch or bridge, or any other machine capable of executing a set of instructions (sequential or otherwise) that specify actions to be taken by that machine. In a particular embodiment, the computer system **800** can be implemented using electronic devices that provide voice, video or data communication. Further, while a single computer system **800** is illustrated, the term "system" shall also be taken to include any collection of systems or sub-systems that individually or jointly execute a set, or multiple sets, of instructions to perform one or more computer functions.

As illustrated in FIG. 8, the computer system **800** may include a processor **802**, e.g., a central processing unit (CPU), a graphics processing unit (GPU), or both. Moreover, the computer system **800** can include a main memory **804** and a static memory **806** that can communicate with each other via a bus **808**. As shown, the computer system **800** may further include a video display unit **810**, such as a liquid crystal display (LCD), an organic light emitting diode (OLED), a flat panel display, a solid state display, or a cathode ray tube (CRT). Additionally, the computer system **800** may include an input device **812**, such as a keyboard, and a cursor control device **814**, such as a mouse. Further, the computer system **800** can include a wireless input device **815**, e.g., a remote control device. When the computer system **800**, or any por-

tion thereof, is embodied in a set-top box device, the cursor control device **814** can be a remote control device. The computer system **800** can also include a disk drive unit **816**, a signal generation device **818**, such as a speaker or remote control, and a network interface device **820**.

In a particular embodiment, as depicted in FIG. 8, the disk drive unit **816** may include a computer-readable medium **822** in which one or more sets of instructions **824**, e.g., software, can be embedded. Further, the instructions **824** may embody one or more of the methods or logic as described herein. In a particular embodiment, the instructions **824** may reside completely, or at least partially, within the main memory **804**, the static memory **806**, and/or within the processor **802** during execution by the computer system **800**. The main memory **804** and the processor **802** also may include computer-readable media.

In an alternative embodiment, dedicated hardware implementations, such as application specific integrated circuits, programmable logic arrays and other hardware devices, can be constructed to implement one or more of the methods described herein. Applications that may include the apparatus and systems of various embodiments can broadly include a variety of electronic and computer systems. One or more embodiments described herein may implement functions using two or more specific interconnected hardware modules or devices with related control and data signals that can be communicated between and through the modules, or as portions of an application-specific integrated circuit. Accordingly, the present system encompasses software, firmware, and hardware implementations.

In accordance with various embodiments of the present disclosure, the methods described herein may be implemented by software programs executable by a computer system. Further, in an exemplary, non-limited embodiment, implementations can include distributed processing, component/object distributed processing, and parallel processing. Alternatively, virtual computer system processing can be constructed to implement one or more of the methods or functionality as described herein.

The present disclosure contemplates a computer-readable medium that includes instructions **824** or receives and executes instructions **824** responsive to a propagated signal, so that a device connected to a network **826** can communicate voice, video or data over the network **826**. Further, the instructions **824** may be transmitted or received over the network **826** via the network interface device **820**.

While the computer-readable medium is shown to be a single medium, the term "computer-readable medium" includes a single medium or multiple media, such as a centralized or distributed database, and/or associated caches and servers that store one or more sets of instructions. The term "computer-readable medium" shall also include any medium that is capable of storing, encoding or carrying a set of instructions for execution by a processor or that cause a computer system to perform any one or more of the methods or operations disclosed herein.

In a particular non-limiting, exemplary embodiment, the computer-readable medium can include a solid-state memory such as a memory card or other package that houses one or more non-volatile read-only memories. Further, the computer-readable medium can be a random access memory or other volatile re-writable memory. Additionally, the computer-readable medium can include a magneto-optical or optical medium, such as a disk or tapes or other storage device to capture carrier wave signals such as a signal communicated over a transmission medium. A digital file attachment to an e-mail or other self-contained information archive or set of

archives may be considered a distribution medium that is equivalent to a tangible storage medium. Accordingly, the disclosure is considered to include any one or more of a computer-readable medium or a distribution medium and other equivalents and successor media, in which data or instructions may be stored.

In accordance with various embodiments, the methods described herein may be implemented as one or more software programs running on a computer processor. Dedicated hardware implementations including, but not limited to, application specific integrated circuits, programmable logic arrays and other hardware devices can likewise be constructed to implement the methods described herein. Furthermore, alternative software implementations including, but not limited to, distributed processing or component/object distributed processing, parallel processing, or virtual machine processing can also be constructed to implement the methods described herein.

It should also be noted that software that implements the disclosed methods may optionally be stored on a tangible storage medium, such as: a magnetic medium, such as a disk or tape; a magneto-optical or optical medium, such as a disk; or a solid state medium, such as a memory card or other package that houses one or more read-only (non-volatile) memories, random access memories, or other re-writable (volatile) memories. The software may also utilize a signal containing computer instructions. A digital file attachment to e-mail or other self-contained information archive or set of archives is considered a distribution medium equivalent to a tangible storage medium. Accordingly, the disclosure is considered to include a tangible storage medium or distribution medium as listed herein, and other equivalents and successor media, in which the software implementations herein may be stored.

Although the present specification describes components and functions that may be implemented in particular embodiments with reference to particular standards and protocols, the disclosure is not limited to such standards and protocols. For example, standards for Internet and other packet switched network transmission (e.g., TCP/IP, UDP/IP, HTML, HTTP) represent examples of the state of the art. Such standards are periodically superseded by faster or more efficient equivalents having essentially the same functions. Accordingly, replacement standards and protocols having the same or similar functions as those disclosed herein are considered equivalents thereof.

The illustrations of the embodiments described herein are intended to provide a general understanding of the structure of the various embodiments. The illustrations are not intended to serve as a complete description of all of the elements and features of apparatus and systems that utilize the structures or methods described herein. Many other embodiments may be apparent to those of skill in the art upon reviewing the disclosure. Other embodiments may be utilized and derived from the disclosure, such that structural and logical substitutions and changes may be made without departing from the scope of the disclosure. Additionally, the illustrations are merely representational and may not be drawn to scale. Certain proportions within the illustrations may be exaggerated, while other proportions may be minimized. Accordingly, the disclosure and the figures are to be regarded as illustrative rather than restrictive.

One or more embodiments of the disclosure may be referred to herein, individually and/or collectively, by the term "invention" merely for convenience and without intending to voluntarily limit the scope of this application to any particular invention or inventive concept. Moreover, although

specific embodiments have been illustrated and described herein, it should be appreciated that any subsequent arrangement designed to achieve the same or similar purpose may be substituted for the specific embodiments shown. This disclosure is intended to cover any and all subsequent adaptations or variations of various embodiments. Combinations of the above embodiments, and other embodiments not specifically described herein, will be apparent to those of skill in the art upon reviewing the description.

The Abstract of the Disclosure is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims. In addition, in the foregoing Detailed Description, various features may be grouped together or described in a single embodiment for the purpose of streamlining the disclosure. This disclosure is not to be interpreted as reflecting an intention that the claimed embodiments require more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive subject matter may be directed to less than all of the features of any of the disclosed embodiments. Thus, the following claims are incorporated into the Detailed Description, with each claim standing on its own as defining separately claimed subject matter.

The above disclosed subject matter is to be considered illustrative, and not restrictive, and the appended claims are intended to cover all such modifications, enhancements, and other embodiments, which fall within the scope of the present disclosure. Thus, to the maximum extent allowed by law, the scope of the present invention is to be determined by the broadest permissible interpretation of the following claims and their equivalents, and shall not be restricted or limited by the foregoing detailed description.

What is claimed is:

1. A method comprising:

receiving, at a set-top box associated with a caller, a request to initiate a voice call between a first communication device associated with a contact and a second communication device associated with the caller, wherein the set-top box is distinct from the first communication device, and wherein the set-top box is distinct from the second communication device.

2. The method of claim 1, further comprising sending data to a communication server, the data indicating the first communication device and the second communication device.

3. The method of claim 1, further comprising receiving, at the set-top box, a selection of the contact before receiving the request to initiate the voice call.

4. The method of claim 1, wherein the request to initiate the voice call includes an indication of a selection of a call placement indicator.

5. The method of claim 1, further comprising prompting the caller to select one of a plurality of communication devices associated with the caller, wherein the plurality of communication devices includes the second communication device.

6. The method of claim 1, further comprising receiving, at the set-top box, a selection of the second communication device.

7. The method of claim 2, further comprising:

receiving, from the communication server, an indication that the communication server has placed the call to the first communication device and has routed the call to the second communication device; and

sending display data to a display device coupled to the set-top box, the display data indicating that the call has been placed to the first communication device associated with the contact.

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8. A set-top box comprising:

a processor; and

a memory accessible to the processor, wherein the memory includes instructions executable by the processor to perform operations including:

receiving a request, at the set-top box, to initiate a voice call between a first communication device associated with a contact and a second communication device associated with a caller, wherein the set-top box is distinct from the first communication device, and wherein the set-top box is distinct from the second communication device; and

sending data to a communication server, the data indicating the first communication device and the second communication device.

9. The set-top box of claim 8, wherein the operations further include initiating presentation, at a display device, of a selectable call placement indicator to initiate the request.

10. The set-top box of claim 8, wherein the request is generated in response to a selection of a selectable call placement indicator.

11. The set-top box of claim 8, wherein the operations further include receiving, from the communication server, an indication that the communication server has placed the call to the first communication device and has routed the call to the second communication device.

12. The set-top box of claim 8, wherein the operations further include prompting the caller to join the call via the second communication device in response to an indication that the first communication device is ringing.

13. The set-top box of claim 8, wherein the request to initiate the call is received subsequent to a first selection of the contact and a second selection of the second communication device.

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14. The set-top box of claim 8, wherein the operations further include sending display data to a display device, the display data indicating that the call has been placed to the first communication device.

15. A method comprising:

initiating presentation of a graphical user interface at a display device coupled to a set-top box, the graphical user interface including a selectable call placement indicator that, when selected, sends a request to the set-top box to initiate a voice call between a first communication device associated with a contact and a second communication device associated with a caller, wherein the set-top box is distinct from the first communication device, and wherein the set-top box is distinct from the second communication device.

16. The method of claim 15, further comprising receiving a selection of the call placement indicator to request initiation of the voice call.

17. The method of claim 15, wherein the contact is selected via an address book, a call log, a voicemail indicator, a manual entry, or a combination thereof.

18. The method of claim 15, wherein a selection of the contact includes a selection of a name, a phone number, an email address, a street address, a photograph, or a combination thereof.

19. The method of claim 15, further comprising:

sending request data to a server to initiate the voice call; and

sending data to the display device in response to an indication that the voice call has been placed to the contact.

20. The method of claim 19, wherein the data sent to the display device includes an audible alert and indicates that the voice call can be joined via the communication device.

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